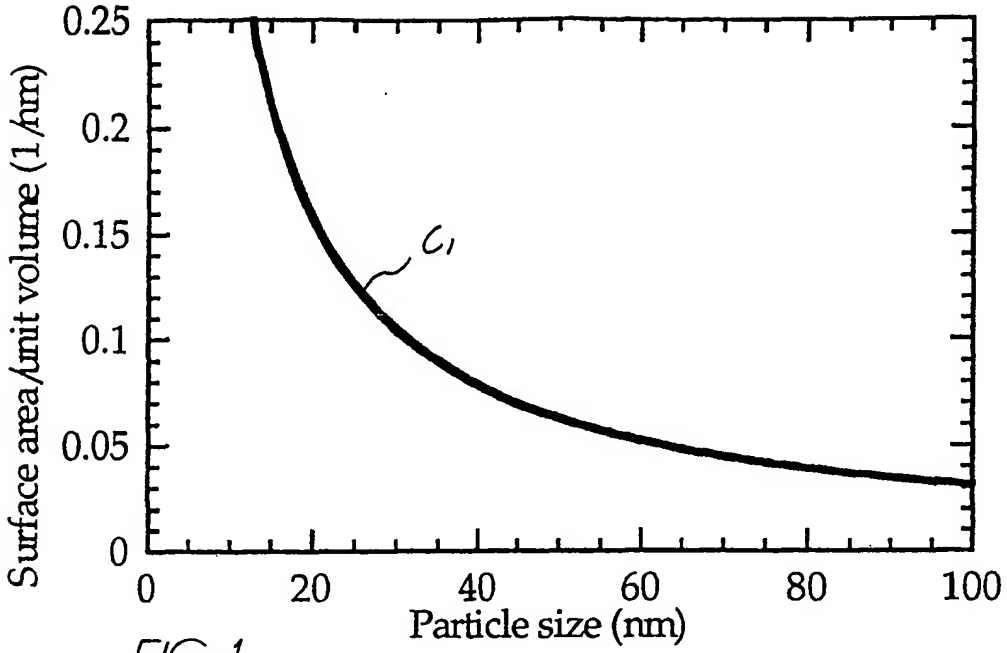
0.25
0.2
0.15
0.1
0.05
0
Surface area/unit volume (1/nm)
C1
0
20
40
60
80
100
Particle size (nm)

FIG 1

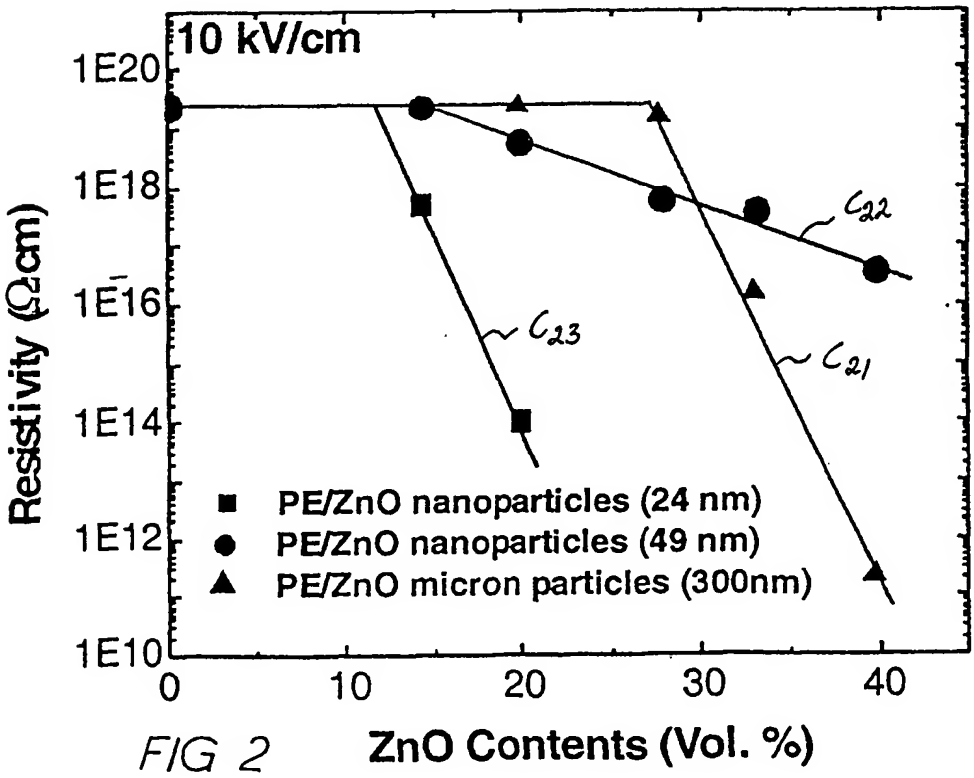
10 kV/cm
1E20
1E18
1E16
1E14
1E12
1E10
Resistivity (Ωcm)
C22
C23
C21
PE/ZnO nanoparticles (24 nm)
PE/ZnO nanoparticles (49 nm)
PE/ZnO micron particles (300nm)
0
10
20
30
40
ZnO Contents (Vol. %)

FIG 2

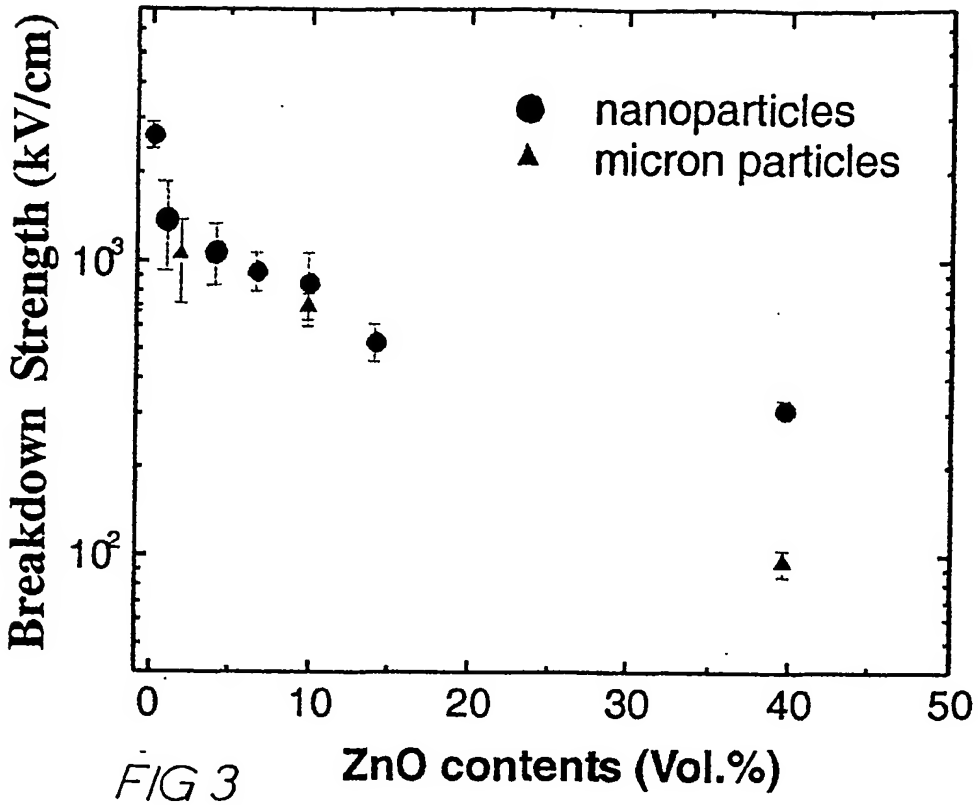
Breakdown Strength (kV/cm)
10^3
10^2
nanoparticles
micron particles
0
10
20
30
40
50
ZnO contents (Vol.%)

FIG 3

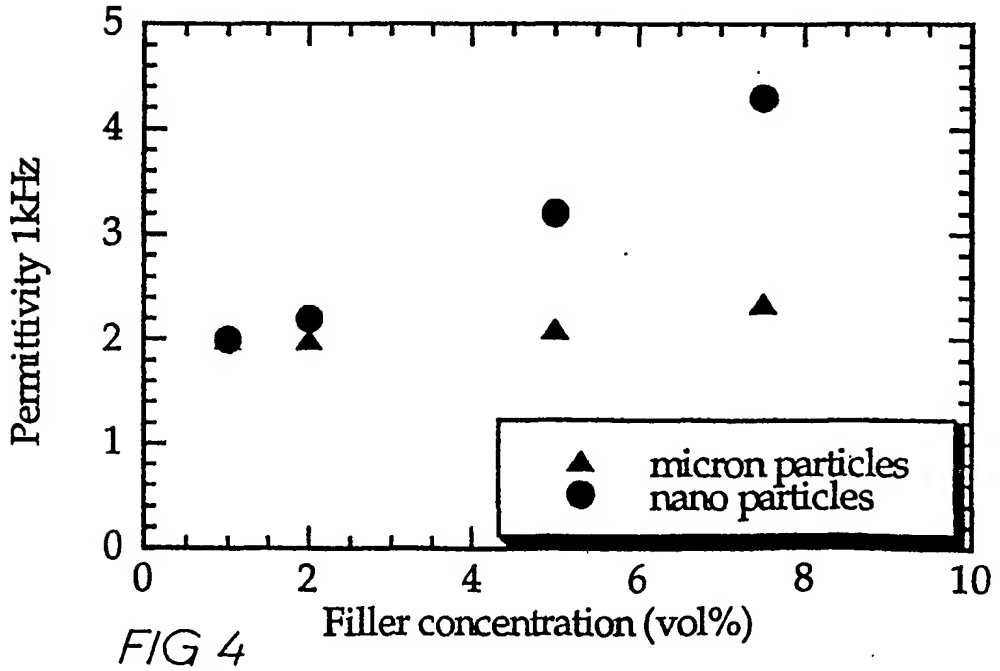
Permittivity 1kHz
5
4
3
2
1
0
micron particles
nano particles
0
2
4
6
8
10
Filler concentration (vol%)

FIG 4

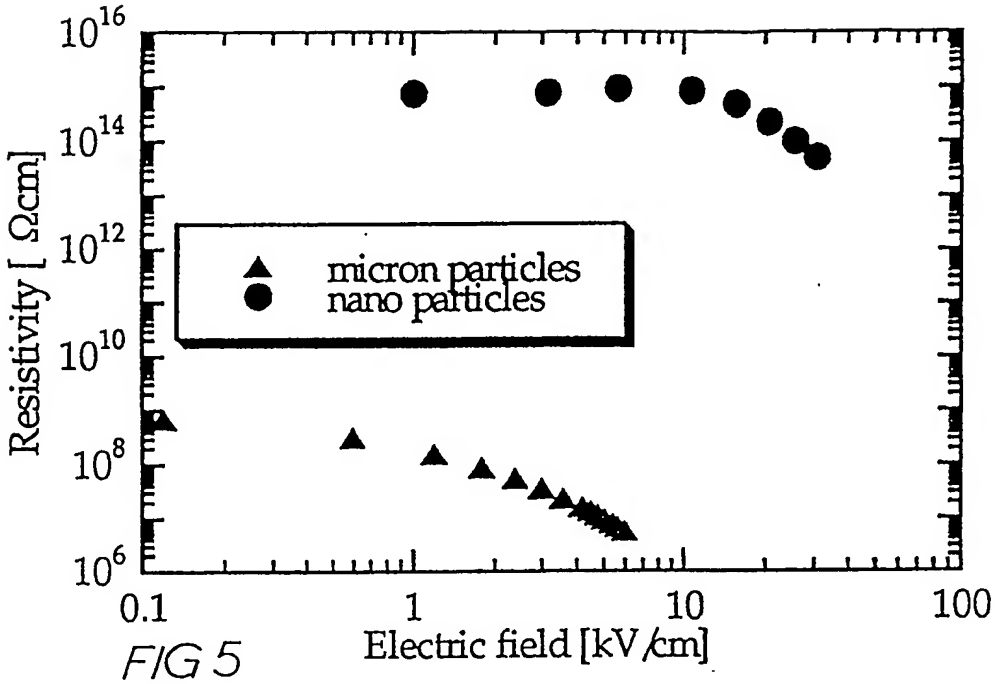
Resistivity [Ωcm]
10^{16}
10^{14}
10^{12}
10^{10}
10^{8}
10^{6}
micron particles
nano particles
0.1
1
10
100
Electric field [kV/cm]

FIG 5

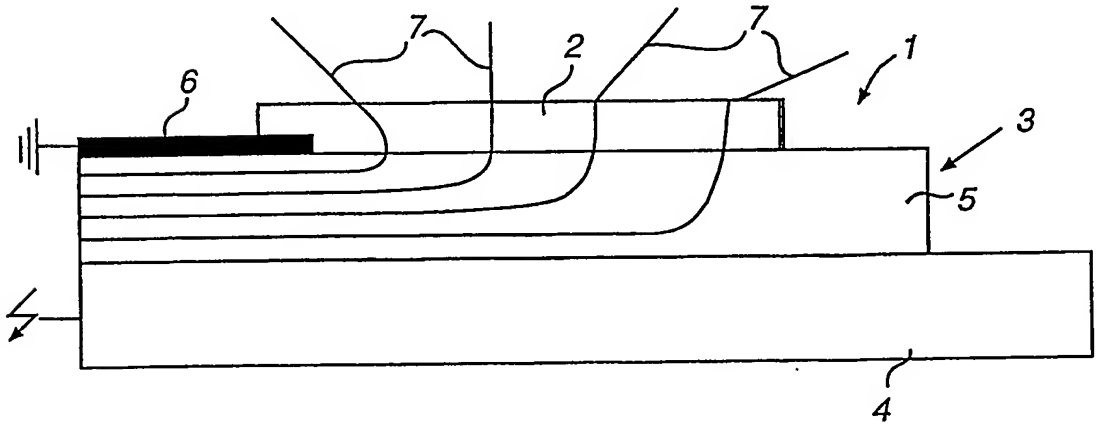
7
2
7
1
6
3
5
4

Fig. 6